

# Preventive Services Program

## *A Report from the 2015-2016 School Year*



Promoting  
Healthy  
Smiles  
through  
Prevention  
and  
Education



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## Introduction

As stated in *Oral Health in America: A Report of the Surgeon General*, oral health is essential for general health and quality of life. The consequences of poor oral health are pain, financial and social costs, and complications that affect overall well-being. In children, poor oral health has been linked to missed school as well as problems with speaking, eating, and learning.<sup>1</sup> Tooth decay is the most common chronic childhood disease in children – it is five times more common than asthma.<sup>2</sup>

To address the serious consequences of those oral health needs for children in particular, the Missouri Department of Health and Senior Services (DHSS) created the Missouri Oral Health Preventive Services Program (PSP). The PSP is a free, community-based, systematic approach to population-based prevention of oral disease. The PSP is dedicated to promoting healthy smiles in all Missouri's children (infants to age 18) through oral health education and preventive treatment.

The PSP is managed by the Office of Dental Health, under the direction of the State Dental Director. The program is coordinated by five regional oral health consultants (who are Registered Dental Hygienists) (Appendix 1, OHC Map) who assist communities with implementing the PSP in their schools, day care centers, Head Starts, preschools, health clinics, and other settings. In addition to technical assistance, DHSS provides educational materials, oral health screening supplies (such as screening forms and disposable mouth mirrors), oral health supplies (toothbrushes, toothpaste, and floss) and fluoride varnish for each PSP event. The PSP also provides online instructions for dental health professionals who perform oral health screenings and training for parents and other volunteers who perform the fluoride varnish application. This ensures consistency in PSP findings and practices.

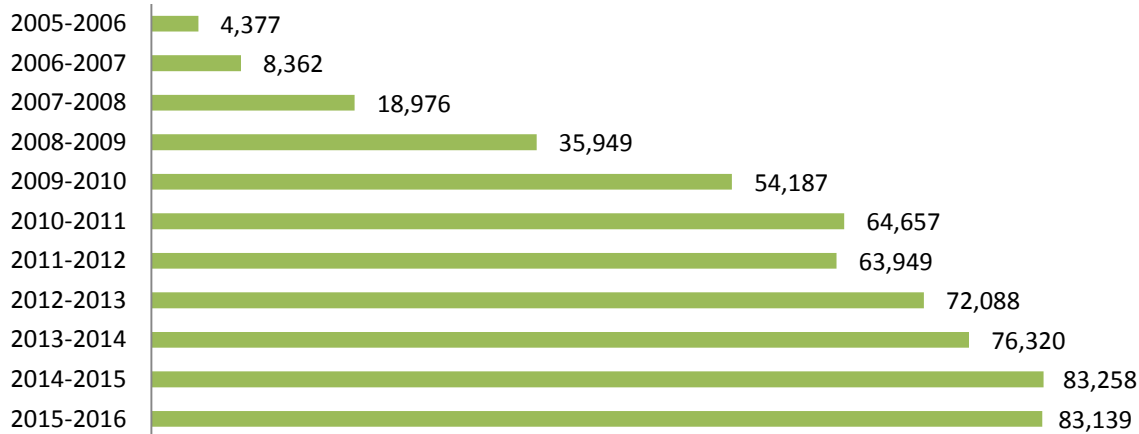
It is important to note that the PSP is a community-driven program and is only possible through the hard work and enthusiasm of school nurses and others interested in promoting oral health at their institutions. Community volunteers are essential for PSP programs. These local volunteers include the dentists and dental hygienists who perform oral health screenings as well as parents and other volunteers who apply fluoride varnish.

This report highlights the accomplishments of the 2015-2016 School Year as well as important oral health findings from the oral health screening component of the program. Parental consent is presented for every PSP participant who receives a screening and/or application of fluoride varnish. Each child receives two doses of fluoride varnish per school year through PSP. It is important to state that any child who has been identified as having a need for dental care is provided with information to be shared with their parent or guardian about the problem, how soon the need should be addressed, and a list of dentists or dental clinics in their area that can assist them.

## Overview

In the 2015-2016 School Year, 83,138 children were served by the PSP. This is slightly lower than the total served during the previous school year, which reached the highest numbers in the history of the program. This may indicate that the PSP has reached the top of its capacity, as it is dependent on local volunteers, particularly dental professionals. Approximately two-thirds of PSP participants attend a public school with at least 50% of the student population classified as eligible for free or reduced school lunch fees. This measure is typically used to define a population as being at high risk for adverse oral health outcomes.

## PSP Participants by School Year



Although 83,139 children participated in PSP during the 2015-2016 School Year, this report presents summary findings from 77,468 screening forms that were returned with data complete enough for analysis. All data reported here are for the 2015-2016 School Year.

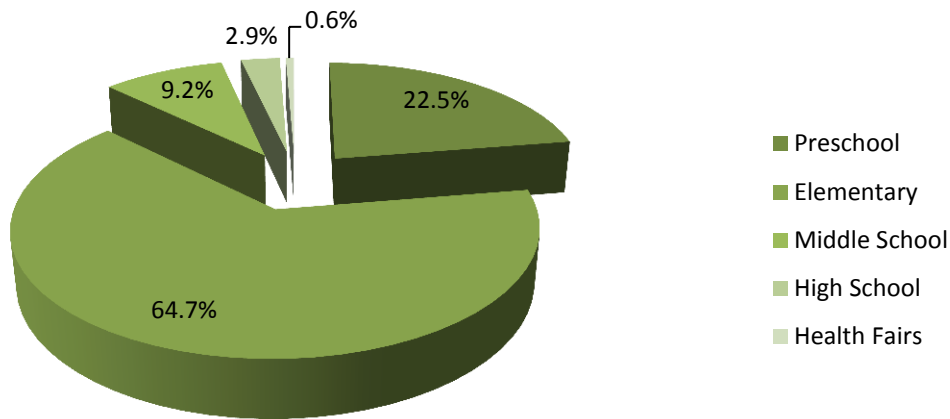
About equal numbers of males and females were served by the PSP in the 2015-2016 School Year. About three-fourths of participants were six to twelve years old while roughly 20% were younger than six years of age. Teenagers (13 years and older) were reached the least frequently of any age group.

### PSP Participants by Age Group and Sex

Age Group	Females	Males	Both Sexes
0 to 5 Years of Age	7,001	7,440	14,441
6 to 12 Years of Age	28,828	29,778	58,606
13 Years of Age and Older	2,141	2,280	4,421
All Ages	37,970	39,498	77,468

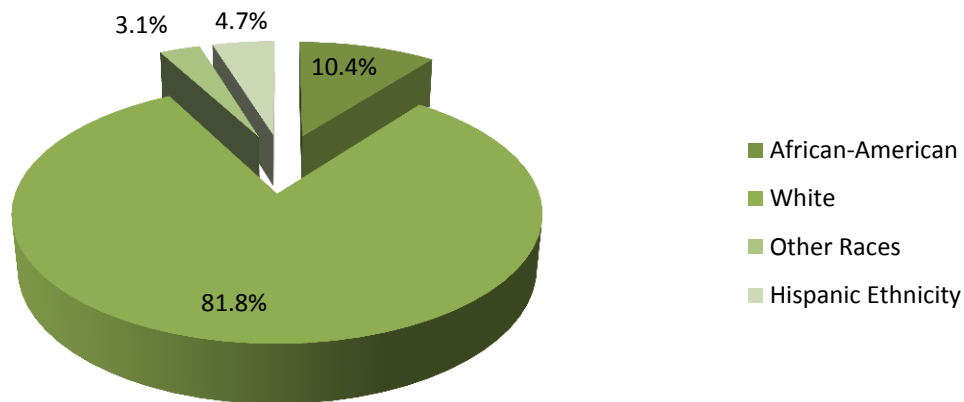
Most PSP events take place in schools. Grade level categories consist of preschool (which includes preschoolers, kindergarteners, and Head Start students), elementary school (first through fifth graders), middle school (sixth through eighth graders), and high school (grades nine through twelve). PSP also provides screenings to children that participate in health fairs and similar community events. These events often take place away from schools or during the summer, so grade levels are not recorded; children screened at these events represent less than 1% of all participants. The PSP reaches the most children in the elementary school category, with 65% of all participants in first through fifth grades. The second most common grade category is preschool, at about 23%. Middle school students represent about 9% of participants and high school students make up only about 3%.

### PSP Participants by Grade Category



The majority of PSP participants are white. About 10.4% are African American, which includes children listed as “multiracial” on the PSP screening form. This is because children identified by screeners as being from more than one race would likely be recorded in the United States Census as African American. About 3% of participants are from all other racial groups and 5% of PSP participants are of Hispanic ethnicity.

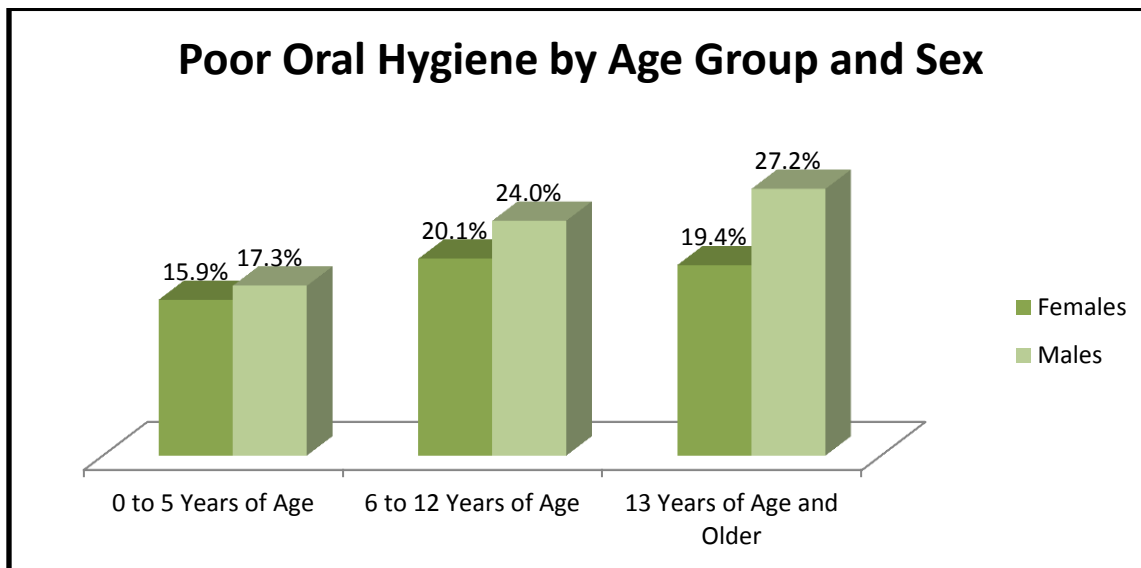
### PSP Participants by Race/Ethnicity



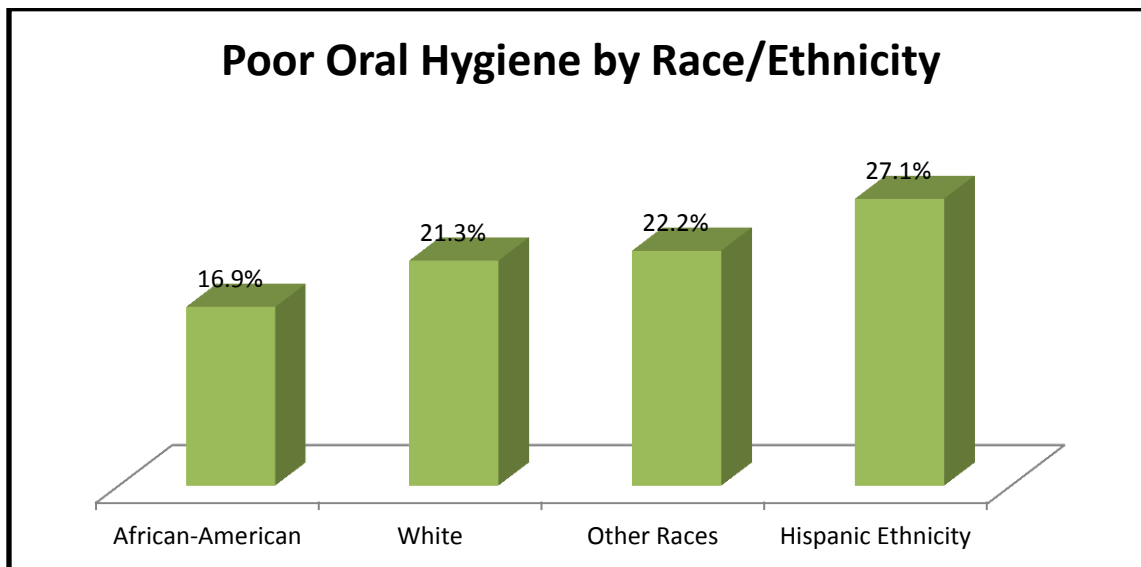
The PSP is a purely voluntary program, so PSP events only occur in communities where school nurses, dental professionals, and volunteers can come together for the cause. For this reason, the distribution of PSP participants varies greatly by geography (see Appendix 2, PSP Map). In the 2015-2016 School Year, only eight counties did not have any PSP participation.

## Poor Oral Hygiene

Among the 77,468 PSP participants included in this report, poor oral hygiene was observed in about 20% of those screened. In each age group, more males had poor oral hygiene than females. Older children in general had worse oral hygiene than younger children. Teenage males had the worst oral hygiene.



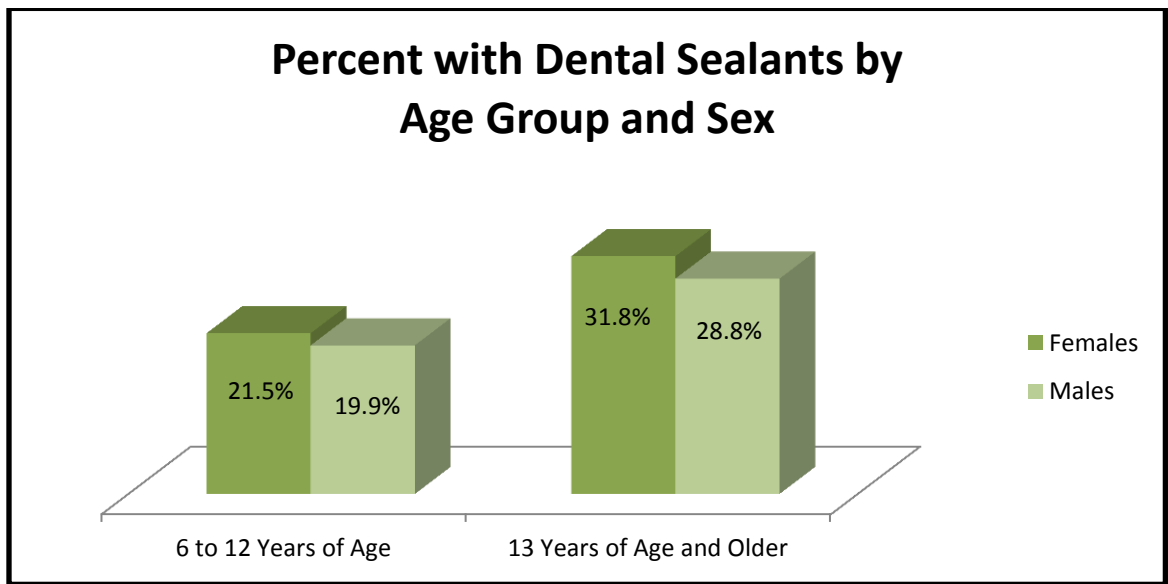
Poor oral hygiene was observed most frequently among individuals with Hispanic ethnicity, followed by other races. Poor oral hygiene was reported least frequently among African American children.



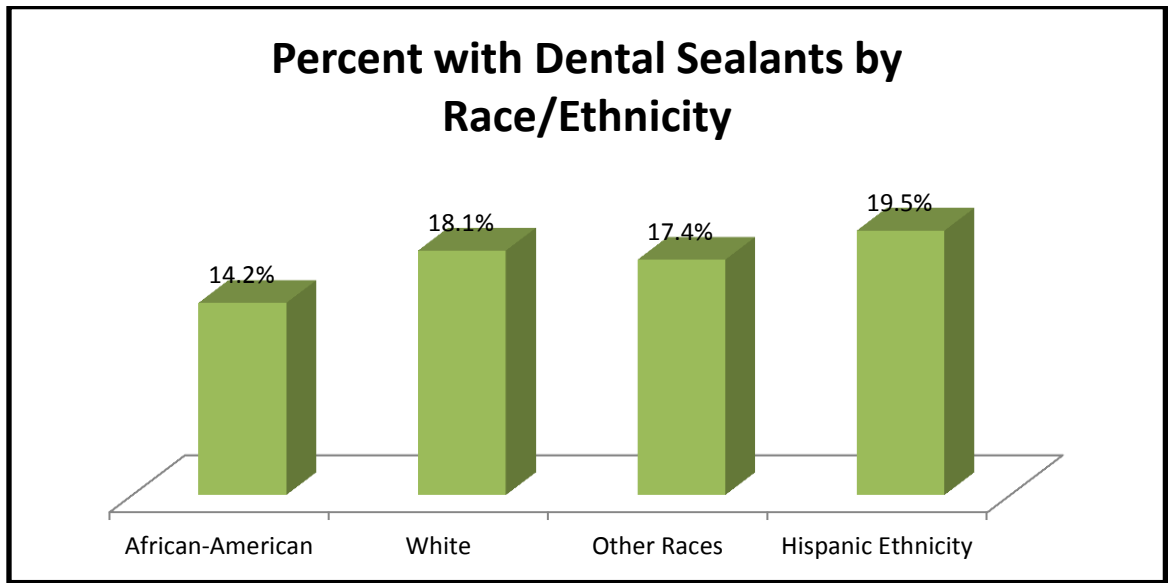
## Dental Sealants

Dental sealants are clear plastic coatings applied to the chewing surfaces of permanent molars to prevent cavities. Ideally, dental sealants are placed as soon as possible after the permanent molars erupt. Children are usually around seven when their first permanent molar erupts and around ten when their second permanent molar erupts.

Dental sealants are commonly placed on newly erupted permanent molars, so data are only reported for children 6 years of age and older. Overall, in the 2015-2016 School Year, 17.7% of children (6 years of age and older) were identified as having dental sealants. Sealants were observed on slightly more females than males. Older children were more likely to have dental sealants.



Among children 6 years of age and older, African American and white children had the lowest percentage of dental sealants. Hispanic children were the most likely to have dental sealants.

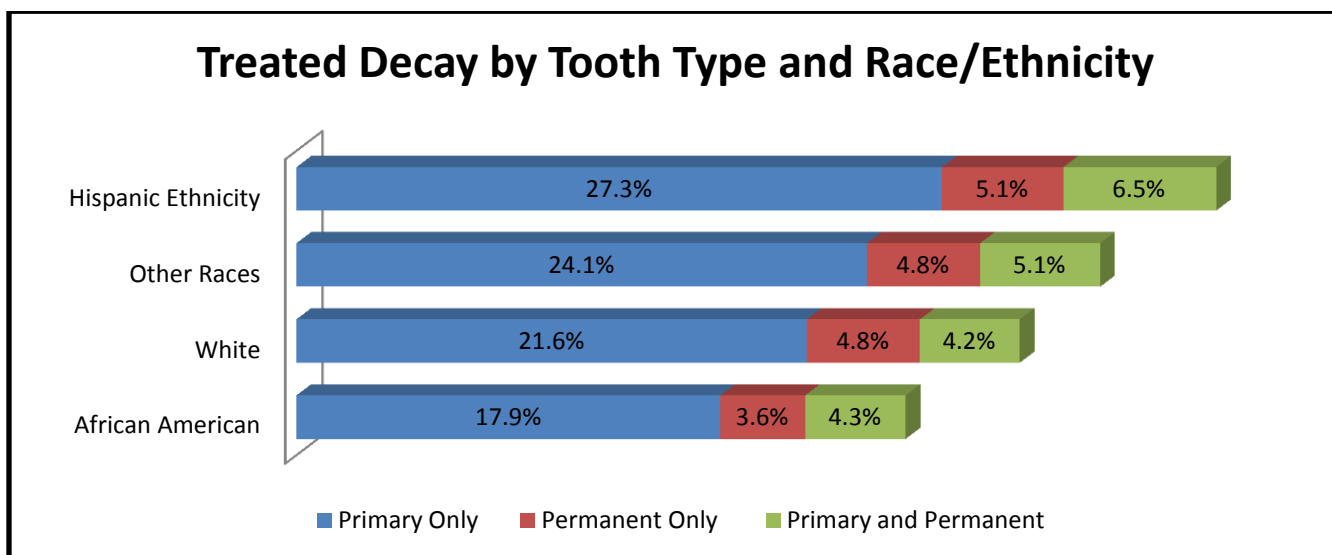


**Treated Decay**

Evidence of treated decay (fillings) on primary (baby) and permanent teeth was recorded during the screening. Most children had no evidence of treated decay. But, about 22% of all children had treated decay on their primary teeth only. This was more common in males than females. About 5% of children had treated decay on permanent teeth only and about 4% had evidence of treated decay on both primary and permanent teeth.

Treated Decay by Tooth Type and Sex			
Tooth Type	Females	Males	Both Sexes
Primary Only	20.6%	22.5%	21.6%
Permanent Only	4.8%	4.5%	4.7%
Primary and Permanent	4.3%	4.5%	4.4%

Hispanic children had the most treated decay in each tooth type category of any racial or ethnic group screened. African American children had the least treated decay, particularly among primary teeth.



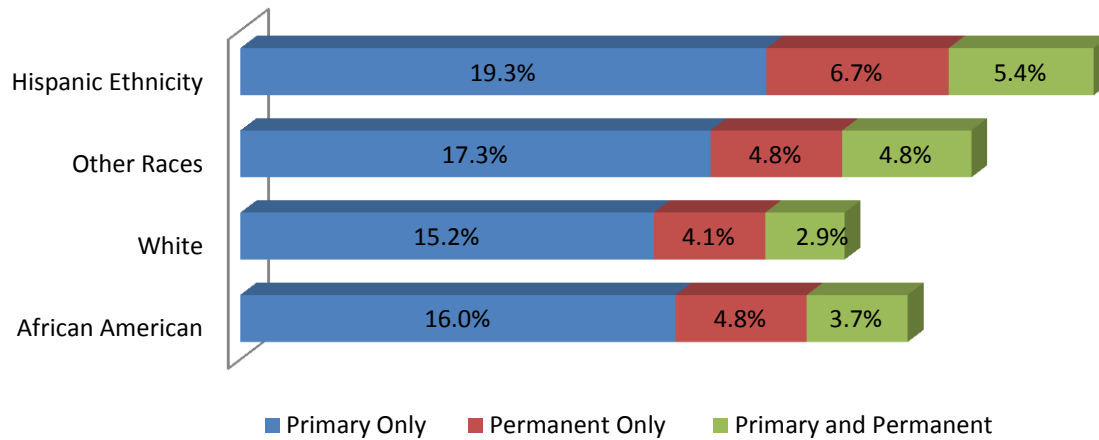
## Untreated Decay

Children were also screened for evidence of untreated decay in primary and permanent teeth. Untreated decay was identified on primary teeth only in 15.5% of all children screened. This was slightly higher in males. Untreated decay was identified less frequently on permanent teeth, at 4.3%. Only about 3% of all children had untreated decay on both primary and permanent teeth.

Untreated Decay by Tooth Type and Sex			
Tooth Type	Females	Males	Both Sexes
Primary Only	14.9%	16.1%	15.5%
Permanent Only	4.5%	4.2%	4.3%
Primary and Permanent	3.1%	3.2%	3.2%

Untreated decay was identified most frequently in children with Hispanic ethnicity, regardless of tooth type. White children were the least likely to have untreated decay. As was observed for treated decay, primary teeth were the most likely to have untreated decay.

## Untreated Decay Tooth Type and Race/Ethnicity

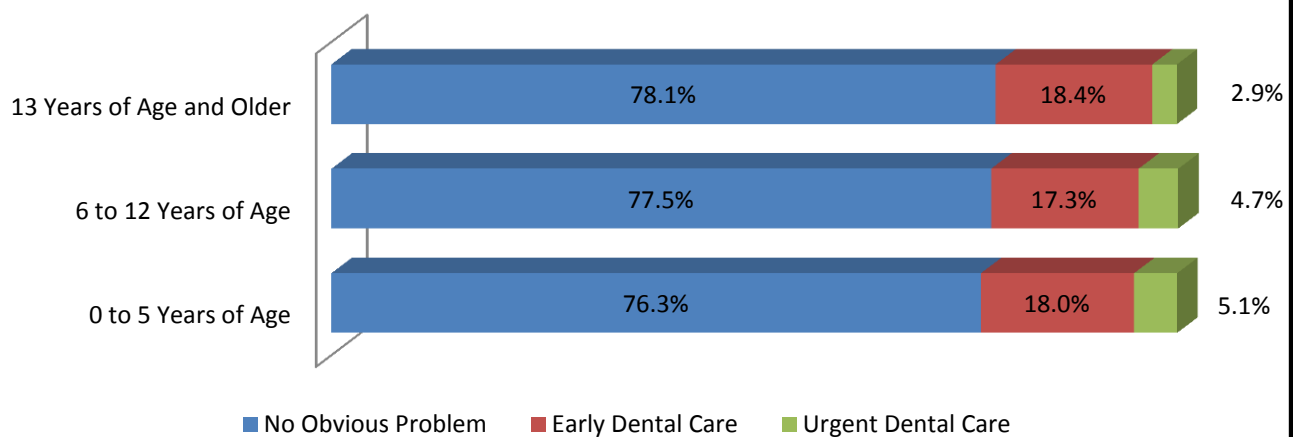


## Treatment Urgency

One important service of the PSP is that parents or guardians are informed when a dental issue that needs to be addressed is discovered during the screening. PSP organizers provide referrals for local dental offices or clinics that may be utilized for follow-up care. The need for treatment is categorized in two ways. Early dental care is recommended for injuries or conditions that require the attention of a dental professional in a few months' time. Urgent dental care is recommended to take place within 24 hours because the injury or condition needs immediate attention.

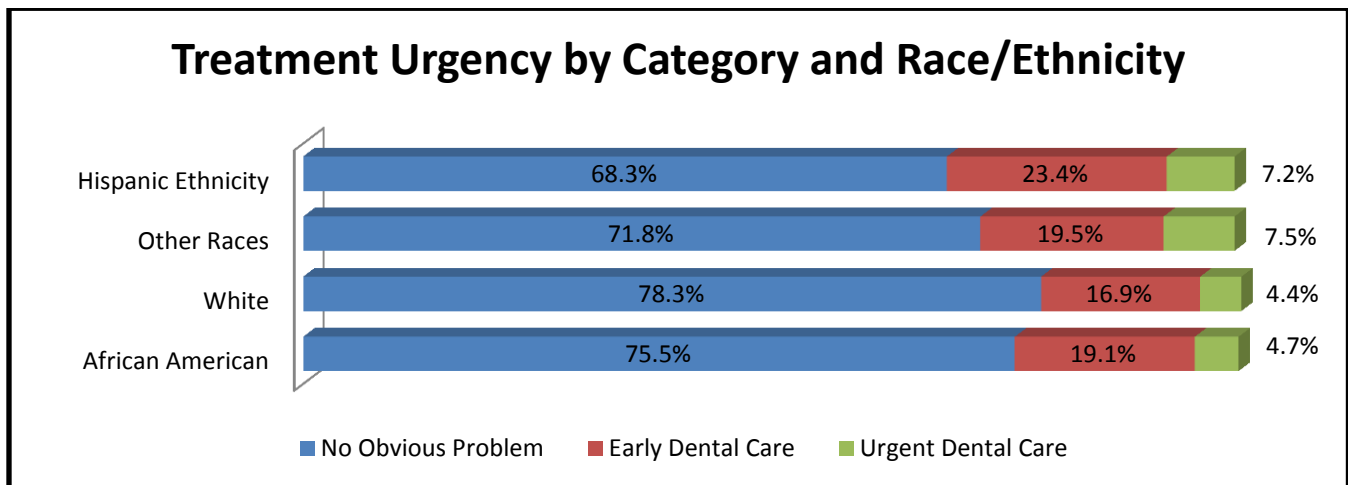
The majority of children did not have any obvious problem that needed early or urgent dental care. In each age category, roughly 18% of children had an early dental need. Teenagers were the least likely to have an urgent dental need and about 5% of all children younger than 12 years of age had an urgent dental need.

## Treatment Urgency by Category and Age Group



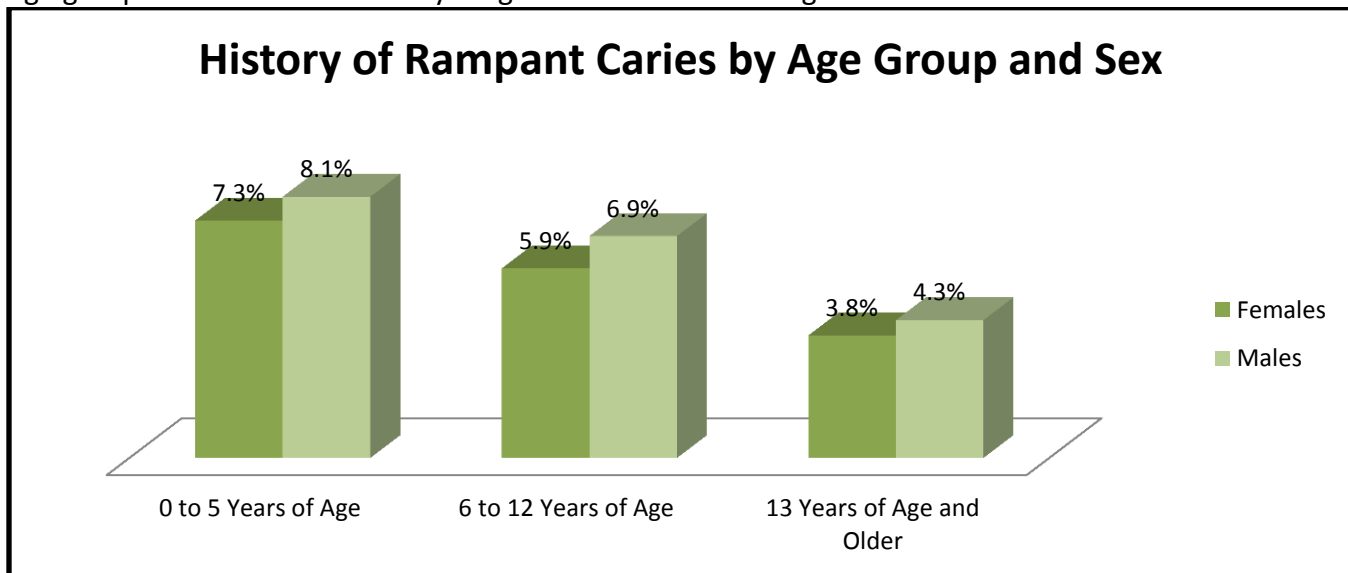


The majority of children had no identified obvious dental problem that needed to be addressed. Hispanic children had the highest percentage of dental need when both early and urgent dental care categories are combined. White children had the lowest percentage of early or urgent dental needs.



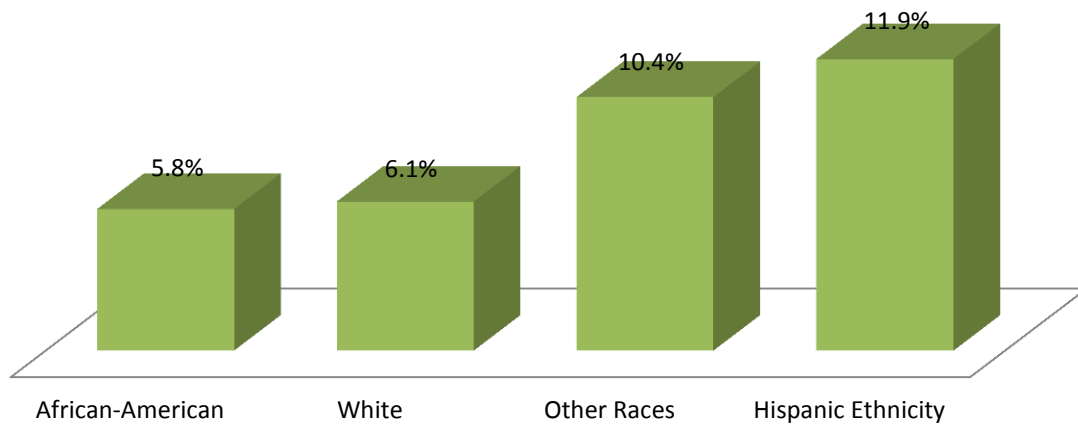
## Rampant Caries

Rampant dental caries involve several teeth and can appear suddenly and progress rapidly; this is relatively rare among Missouri PSP participants. Rampant caries is more common among males than females in each age group and more common in younger children than teenagers.



African American and white children had the lowest percentage of rampant caries than children of other races or Hispanic ethnicity. In fact, the percentage of Hispanic children with a history of rampant caries was nearly twice the proportion in African Americans or whites.

## History of Rampant Caries by Race/Ethnicity



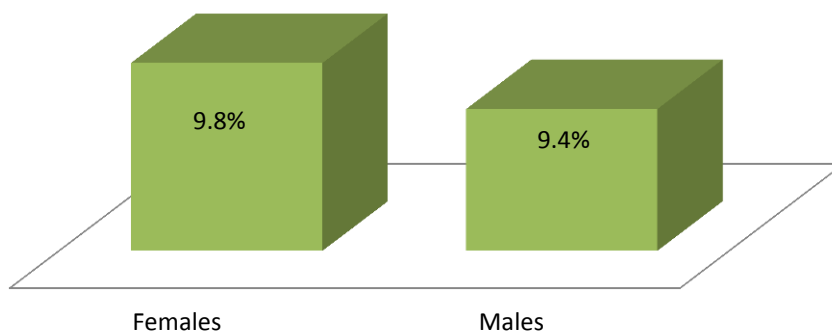
### Early Childhood Findings

White spot lesions and early childhood caries are each screened for in children five years old and younger, in accordance with nationally recognized practices for Basic Screening Surveys like the PSP. For both conditions, findings are reported on primary teeth and only on maxillary (top row) front teeth. It is important to note that PSP mainly serves school-age children, so only 14,441 children five years old and younger were screened in the 2015-2016 School Year; this is about 19% of the PSP population.

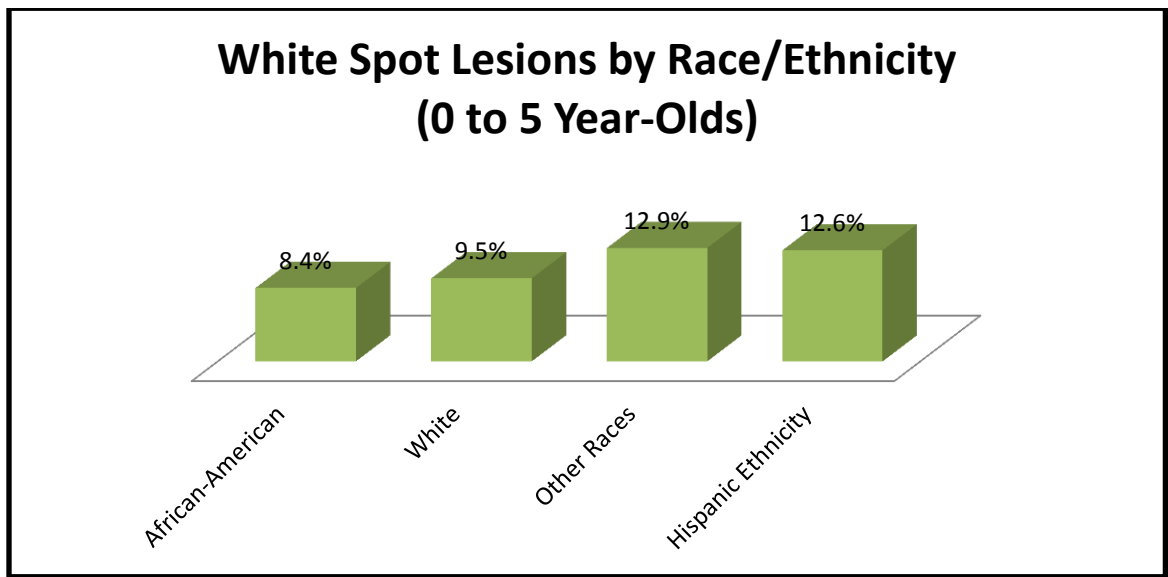
### *White Spot Lesions*

Overall, less than 10% of children five years of age and younger screened had white spot lesions. This was slightly higher among females than males.

## White Spot Lesions by Sex (0 to 5 Year-Olds)

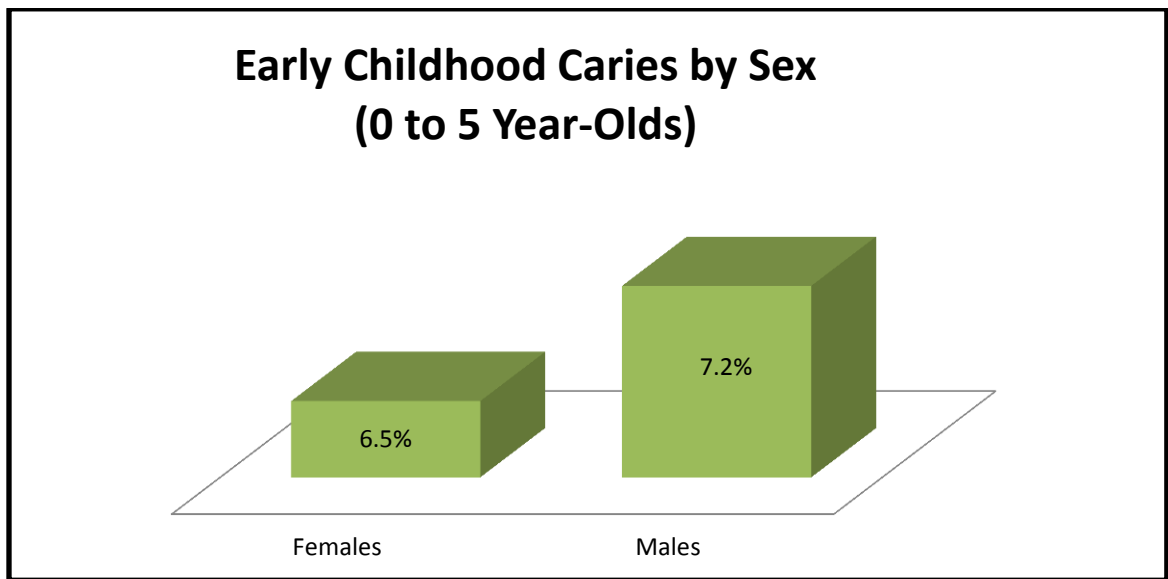


African American children were the least likely to have white spot lesions and children from the “Other Races” category and those with Hispanic ethnicity were the most likely to have white spot lesions.



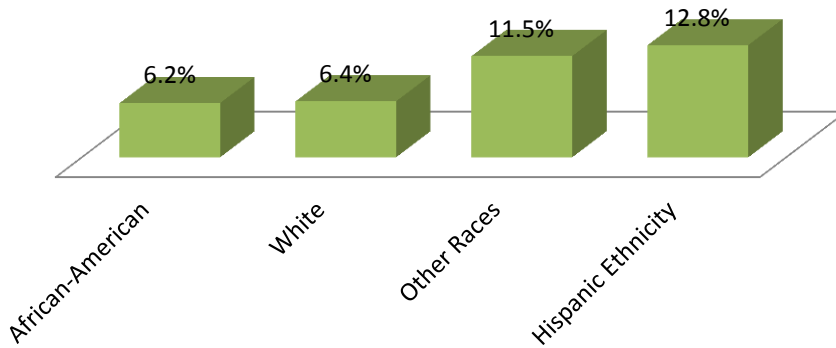
#### *Early Childhood Caries*

Early childhood caries, also known as baby bottle caries or baby bottle tooth decay, is a syndrome characterized by severe decay in the teeth of infants and young children caused by a bacterial infection. Evidence of early childhood caries was observed in about 7% of children five years old and younger. The percentage was slightly higher among males than females.



The lowest percentages of early childhood caries were observed among African American and white children and the highest rates were observed among children of Hispanic ethnicity.

## Early Childhood Caries by Race/Ethnicity (0 to 5 Year-Olds)



### Conclusions

In reviewing data for the 2015-2016 School Year, some trends in oral health among PSP participants are visible. Here are some highlights:

#### *Preventive Factors:*

- The majority of children (almost 80%) had satisfactory oral hygiene. **Poor oral hygiene** was detected most frequently in teenage males and children with Hispanic ethnicity.
- **Dental sealants** were visible on about 18% of all children 6 years of age and older who participate in PSP. African American children were the least likely to have sealants (at only 14%) while Hispanic children were the most likely to have dental sealants.

#### *Tooth Decay:*

- About 70% of children had no evidence of **treated decay** and 75% had no evidence of **untreated decay**. Hispanic children were most likely to have either treated or untreated decay. White children were the least likely to have untreated decay and African American children were the least likely to have treated decay.
- Overall, about 6% of children had a history of **rampant caries**. This was more frequently reported among males and among younger children (five years of age and younger). Hispanic and children from other races were most likely to have a history of rampant caries.

#### *Treatment Urgency:*

- About a quarter of all children in PSP were identified as needing **early or urgent dental care** and were sent home with a notification to their parent or guardian about this finding. Urgent dental care was needed in about 5% of all children 12 years of age and younger.
- White children were least likely to have a dental problem that needed follow-up care. Hispanic children and those in the “Other Races” category were the most likely to need urgent dental care.

## Early Childhood Findings:

- **White spot lesions** were visible in about 10% of PSP participants five years of age and younger. White spot lesions were observed in only about 8% of African American children, compared to about 13% of children belonging to other races or Hispanic ethnicity.
- **Early childhood caries** (or baby bottle tooth decay) was observed in 7% of children five years old and younger. Early childhood caries were observed about twice as often in children from the “Other Races” category or with Hispanic ethnicity than either African American or white children.

## Recommendations:

- Dental sealants are an important measure to prevent tooth decay, but were observed in only 17.7% of PSP children 6 years of age and older. Improving this percentage among Missouri’s children in general would help to reduce tooth decay on molars, which are the teeth that get the most cavities.
  - This recommendation was first made in the 2012-2013 School Year’s PSP report and since that time, the MOHP has implemented two school-based dental sealant programs through partnerships with the Pettis County Health Department and Jordan Valley Community Health Center. These programs have just completed their three-year projects, funded by the Health Resources Services Administration’s Oral Health Workforce Grant.
  - In 2016, a new Missouri Dental Sealant Program was initiated with funds from the Delta Dental Foundation. This statewide, school-based dental sealant program will seek to increase Missouri’s dental sealant prevalence.
- Although a larger proportion of Hispanic children were identified as having dental sealants, for many poor oral health outcomes, Hispanic children had the highest percentage of any racial or ethnic group observed. The most concerning of these are untreated decay, rampant caries, the need for urgent dental care, and early childhood findings. Communities with Hispanic populations may need to tailor oral health messages to meet the cultural and linguistic needs of parents, guardians, and children of Hispanic ethnicity.
  - Based on this observation over previous school years, the MOHP has had all educational materials and PSP documents translated into Spanish.
- The early childhood findings (among children five years of age and younger) suggest that a special effort should be made to educate the parents of young children about oral health in general, with particular emphasis on those of Hispanic descent.

## For more information:

- Please contact the Missouri Office of Dental Health for more information about PSP and oral health in general at 1-800-891-7415 or visit us at <http://health.mo.gov/oralhealth/>.
- Please visit <http://health.mo.gov/living/families/oralhealth/oralhealthsurv.php> for oral health surveillance reports.
- To learn more about PSP events in your area or to start a new event, please contact one of our five regional Oral Health Consultants (see Appendix 1).

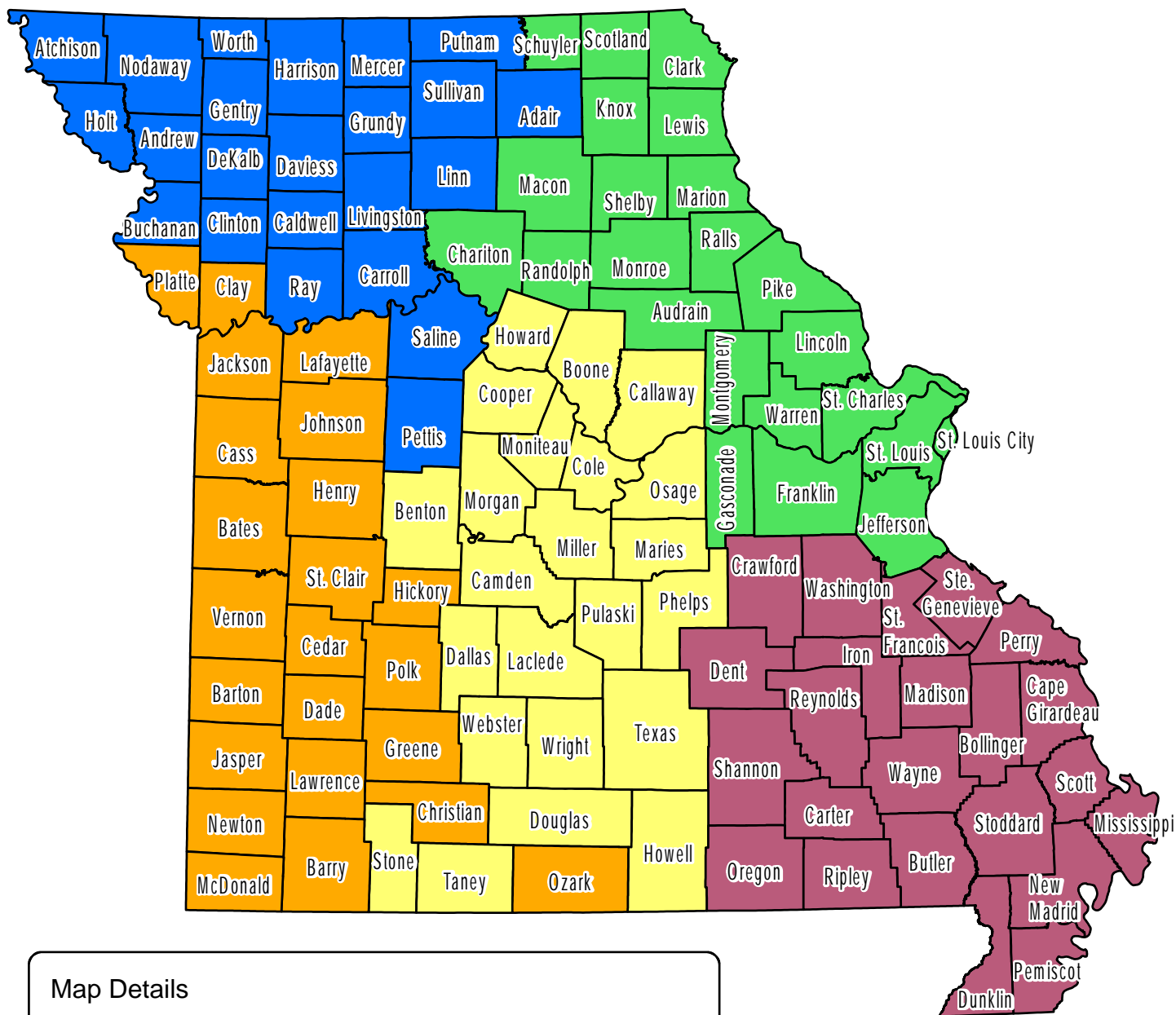
## References

1. U.S. Department of Health and Human Services, *Oral Health in America: A Report of the Surgeon General*, 2000.
2. U.S. Health Resources Services Administration, Oral Health: Women and Children, 2013.  
<http://www.hrsa.gov/publichealth/clinical/oralhealth/maternalchild.html>

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# Appendix 1. PSP Regional Oral Health Consultants



## Map Details

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# Appendix 2. Preventive Services Program Participants by County - 2015-2016 School Year

